

REMARKS/ARGUMENTS

Claims 1-3, 7-14, 17-21, 23, 29-30, 32-41, 44-45, 51-53, 56, and 132-140 remain in this application. Claims 51 and 132 have been amended. Claims 4-6, 15-16, 22, 24-28, 31, 42-43, 46-50, 54-55, 57-131 have been cancelled.

1. § 112 Rejections

The Examiner has rejected claims 132-138 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. According to the Examiner, “there is no support for the steps of providing and contacting.” (Office Action, page 2). Applicants have amended claim 132 to delete “contacting the soot preform” Accordingly, Applicants submit that this rejection is traversed.

The Examiner has rejected claims 132-138 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. According to the Examiner, claim 132 “requires providing an atmosphere to a soot preform, and another step of contacting the preform with an atmosphere. It is unclear if these two steps are the same thing, or if they are separate steps.” (Office Action, page 3). As noted above, Applicants have amended claim 132 to delete “contacting the soot preform” Accordingly, applicants submit that this rejection is traversed.

In addition, with respect to “partially dope”, Applicants submit that this is not unclear since persons having ordinary skill in the art would readily understand that dopant may be present in only part of the preform. Moreover, Applicants cannot see where claim 132 recites “is doped” as alleged by the Examiner.

2. § 103 Rejections

The Examiner has rejected claims 1-3, 7-14, 17-21, 23, 29-30, 32-41, 44, 45, 51-53, 56 and 132-140 under 35 U.S.C. § 103(a) as being unpatentable over Kyoto (5158587) alone, or in view of Walker (4178347), Dobbins (5043002), Biswas (4575463), Simms (4339256) and Korenowski (4118295). According to the Examiner, “Example 2 of Kyoto discloses the providing step and all of the contacting step, except for the flow rate limitation and the decreasing partial pressure. Kyoto’s example 2 also does not disclose the evacuating, refilling and additional contacting step.” (Office

Action, page 5). Nonetheless, the Examiner asserted that “it is inherent that the partial pressure would decrease – clearly, since the fluorine is doped into the glass, the amount of fluorine in the gas would be reduced, which would cause the partial pressure to decrease.” (*Id.*) In addition, the Examiner stated that “[a]s to the evacuating and refilling, it would have been obvious to purge the gas, and refill it so to provide more fluorine. It is generally not inventive to replenish a spent source.” (*Id.*)

Applicants submit that this rejection is traversed. As acknowledged by the Examiner, several limitations of independent claim 1 (and other independent claims) are not taught or suggested by Kyoto. For example, Kyoto fails to teach or suggest that no more than 0.5 slpm of a first gaseous atmosphere flows out of a vessel during a first reacting time. Kyoto also fails to teach or suggest a first halogen-containing gas that has a partial pressure which decreases during a first reacting time. In addition, Kyoto fails to teach or suggest evacuating at least a portion of a first gaseous atmosphere from a vessel. Moreover, Kyoto does not teach or suggest providing a vessel with a second gaseous atmosphere including a second halogen-containing gas. Accordingly, at least this combination of steps outside of the disclosure of Kyoto would be required in order to meet the recitation of, e.g., claim 1.

The Examiner asserts that a halogen-containing gas that has a partial pressure which decreases during a first reacting time is inherent from the teachings of Kyoto. Applicants disagree. As stated in the MPEP, “To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.’” (MPEP § 2112, citing *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)). Here the Examiner has failed to meet the required *prima facie* burden that the teaching of Kyoto would necessarily result in a halogen-containing gas that has a partial pressure which decreases during a first reacting time.

To the contrary, persons of ordinary skill in the art would recognize that Kyoto would *not* result in a halogen-containing gas that decreases in partial pressure during a

first reaction time because Kyoto repeatedly emphasizes processing conditions under which the *pressure or concentration of SiF₄ remains constant during reaction*. For example, Kyoto teaches a vessel “containing pure SiF₄ under pressure of 4 atm. at 1,100° C. for 2 hours.” (Kyoto, col. 4, ll. 16-19). Kyoto teaches that such constant pressure of SiO₄ can be maintained during reaction by *continuously flowing SiF₄ into the reaction vessel* (see, e.g., Kyoto, col. 4, ll. 30-32 (“porous silica glass deposited around the core was heated at 1,100°C under 2 atm. for one hour with flowing SiF₄ at a rate of 2 l/min.”); see also, Kyoto, col. 3, ll. 43-44 (“By continuously providing fresh SiF₄ in the vessel an optimum reaction rate can be maintained.”)). Kyoto further emphasizes that due to the continuous flowing of SiF₄ to the preform, the reaction rate of fluorine is not decreased during reaction, which would indicate a non-decreasing partial pressure of SiF₄, all other rate-affecting reaction conditions, e.g., temperature, being equal (see, e.g., Kyoto, col. 4, ll. 48-51 (“When SiF₄ is continuously flowed during the addition of fluorine to the porous soot preform, the reaction rate of fluorine is *not decreased* and less bubbles are formed in the preform.”) (emphasis added)).

The Examiner asserts that the “Office provided basis for the finding that [partial pressure decrease] was inherent – and such has not been disputed.” (Office Action, page 9). Applicants disagree. The Examiner’s only alleged basis for the conclusion of inherency was the statement that “since the fluorine is doped in the glass, the amount of fluorine in the gas would be reduced, which would cause the partial pressure to decrease.” (Office Action, page 5). However, the partial pressure of fluorine containing gas would not decrease if such gas was continuously being replenished so as to keep its partial pressure constant in the vessel. Such continuous replenishment of fluorine containing gas and/or maintenance of constant partial pressure of fluorine containing gas in the vessel is precisely what is taught and/or suggested throughout Kyoto (see e.g., Kyoto col. 3, ll. 43-44; col. 4, ll. 16-19; col. 4, ll. 30-32; col. 4, ll. 40-42; col. 4, ll. 48-51).

The Examiner also states that “[i]t is argued that Kyoto teaches a constant partial pressure. This is not very relevant. Kyoto has many teachings. The fact that Kyoto has some dissimilar embodiments has little bearing on the specific embodiment(s) that the Office relies to show obviousness.” (Office Action, page 9).

The only specific embodiment of Kyoto relied on by the Examiner is Example 2. However, Example 2 of Kyoto teaches continuous replenishment of SiF₄ gas. Therefore, persons having ordinary skill in the art would not recognize that this example would result in decreasing partial pressure of SiF₄, especially in view of the teachings of Kyoto as a whole, which repeatedly emphasize continuous replenishment of SiF₄ gas in order to maintain a reaction rate. Nor would they recognize any other example or embodiment of Kyoto as resulting in decreasing partial pressure of SiF₄ in a vessel, let alone as necessarily resulting in decreasing partial pressure of SiF₄ in a vessel, as required to establish a *prima facie* case of inherency.

In addition, the Examiner asserts that “[a]s to the argument that modifying Kyoto would render Kyoto unsatisfactory for its intended purpose: It appears that applicant’s position is that altering Kyoto would result in not using Kyoto’s ‘optimum reaction rate.’ This is not persuasive: choosing a non-optimum rate would not render the invention unsatisfactory. It would be reasonable to choose a sub-optimum rate, for example to mitigate the costs of pollution abatement.” (Office Action, page 10).

The Examiner has mischaracterized Applicants’ argument. Applicants’ position is not simply that altering Kyoto would result in not using Kyoto’s optimum reaction rate. Rather, it is more broadly Kyoto’s consistent and repeated emphasis that SiF₄ is to be continuously provided to a reaction vessel to prevent a decrease in the reaction rate of fluorine. Every embodiment of Kyoto is directed toward this end. Therefore, modifying Kyoto to allow for the decrease of the partial pressure of SiF₄ in the vessel, and, consequently, a decrease in the reaction rate, would render Kyoto unsatisfactory for its intended purpose when Kyoto repeatedly emphasizes that this should not be allowed to happen.

In addition, even assuming *arguendo* that it would be reasonable to modify Kyoto to provide for a sub-optimum rate, a position with which Applicants specifically disagree, this misses the relevant issue. The relevant issue is, *inter alia*, whether there is motivation to modify Kyoto to allow for the decrease of the partial pressure of SiF₄ in the vessel. In the present case, this motivation is lacking for at least the reasons explained above, namely that such modification would render Kyoto unsatisfactory for its intended purpose. “If proposed modification would render the prior art invention

being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." (MPEP § 2143.01 (citing *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)).

The Examiner further asserts that Kyoto teaches doping without any gas flowing out. However, the cited portion of Kyoto does not teach this (see, Kyoto, col. 2, l. 63 ("Preferably, SiF₄ is flowed in the atmosphere")). In addition, Applicants submit that a given pressure can be maintained while gas is flowing out provided that a compensating amount of gas is being flowed in. And, as discussed above, continuously flowing in fresh SiF₄ during reaction is precisely what Kyoto consistently and repeatedly teaches (see, e.g., Kyoto, col. 3, ll. 43-44 ("By continuously providing fresh SiF₄ in the vessel an optimum reaction rate can be maintained."); *see also* Kyoto, col. 4, ll. 30-32 ("porous silica glass deposited around the core was heated at 1,100°C under 2 atm. for one hour with flowing SiF₄ at a rate of 2 l/min."))). Therefore, the fact that Kyoto teaches maintaining a given pressure during reaction does not mean that the reference teaches doping without any gas flowing out, let alone that no more than 0.5 slpm of a first gaseous atmosphere flows out of a vessel during a reacting time.

Applicants further submit that persons having ordinary skill in the art would not have been motivated to combine any of the secondary references with Kyoto in order to obtain the claimed invention. Walker relates to entirely non-analogous art ("the simultaneous manufacture of wet process phosphoric acid and sodium silico-fluoride") and the cited portion of Walker relates to the elimination of moisture into an atmosphere containing SiF₄ gas and not the reduction of SiF₄ gas itself (see, Walker col. 3, ll. 14-26). Dobbins also relates to non-analogous art ("the replacement of SiCl₄ in vapour deposition processes with a halide-free, silica-source compound, thus greatly reducing, if not eliminating, the production of HCl.") and use of a halide-free source as taught by Dobbins (i.e., complete replacement of a halide-containing reactant) would render Kyoto unsatisfactory for its intended purpose because Kyoto specifically emphasizes the use of SiF₄.

In addition, persons having ordinary skill in the art would not be motivated to evacuate at least a portion of a first gaseous atmosphere from a vessel and then provide the vessel with a second gaseous atmosphere in view of Biswas. Biswas relates to the

application of a primary and secondary coating on an already drawn optical fiber and does not teach or suggest providing a first gaseous atmosphere to a vessel, at least partially evacuating the first gaseous atmosphere from the vessel, and then providing a second gaseous atmosphere to the vessel.

Persons having ordinary skill in the art would also not be motivated to modify the teachings of Kyoto in view of Simms or Korenowski. Simms relates to the non-analogous art of making ophthalmic polarized glass for sunglass lenses and Korenowski relates to the non-analogous art of regenerating mixtures of chromic and sulphuric acids that are used for etching plastics prior to metallic plating.

Accordingly, Applicants submit that independent claims 1, 30, 51, 132, 139, and 140 are patentable over the cited references. Applicants further submit that all claims depending from these claims are patentable over the cited references.

Moreover, Applicants submit that claim 18 is patentable over the cited references for at least the reasons discussed above and for the additional reason that Kyoto teaches away from the reaction set forth in equation 2 (Kyoto, col. 3, ll. 43-47 (“By continuously providing fresh SiF₄ in the vessel an optimum reaction rate can be maintained. This may be due to the fact that the dissociation reaction represented by the following reaction formula (2) could be suppressed.”)).

With respect to the Official Notice taken by the Examiner with respect to claims 11, 12, and 29, the Examiner states that “it is argued that Examiner has not demonstrated that the reinforcing sleeve is capable of instant and unquestionable demonstration. This is not very relevant – Examiner is only required to show such when applicant has failed to state why the noticed fact is not considered to be common knowledge or well-known in the art.” (Office Action, page 10). Applicants submit that the Examiner is improperly attempting to shift away his burden of properly officially noticing a factual assertion upon challenge by Applicants, a challenge set forth in pages 22-23 of Applicants’ response of October 14, 2008. In this regard, Applicants note that “[i]f applicant adequately traverses the examiner’s assertion of official notice, the examiner must provide documentary evidence in the next Office action if the rejection is to be maintained.” (MPEP § 2144.03). Accordingly, Applicants submit that this ground of rejection should be withdrawn.

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Response dated: February 6, 2009

Office Action dated: November 6, 2008

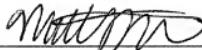
Based upon the above amendments, remarks, and papers of records, applicant believes the pending claims of the above-captioned application are in allowable form and patentable over the prior art of record. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Applicant believes that no extension of time is necessary to make this Reply timely. Should applicant be in error, applicant respectfully requests that the Office grant such time extension pursuant to 37 C.F.R. § 1.136(a) as necessary to make this Reply timely, and hereby authorizes the Office to charge any necessary fee or surcharge with respect to said time extension to the deposit account of the undersigned firm of attorneys, Deposit Account 03-3325.

Please direct any questions or comments to Matthew J. Mason at 607-974-9993.

Respectfully submitted,

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